

August 2, 2011

Mr. Gene Bonano
U.S. Nuclear Regulatory Commission
Region III
2443 Warrenville Road
Lisle, IL 60532-4351

**SUBJECT: ORISE CONTRACT NO. DE-AC05-06OR23100
LETTER REPORT FOR ANALYTICAL RESULTS FOR TWO WATER SAMPLES
FROM THE BRECKENRIDGE SITE, BRECKENRIDGE, MICHIGAN
[INSPECTION REPORT NO. 040-06264]
(RFTA NO. 11-001), DCN: 2050-LR-01-0**

Dear Mr. Bonano:

The Oak Ridge Institute for Science and Education (ORISE) received two water samples on July 25, 2011 from the Breckenridge site in Breckenridge, Michigan. The samples were analyzed according to the NRC Form 303 supplied with the samples including an "urgent" priority. Preliminary data was communicated by phone to Gene Bonano on July 29, 2011. Sample identification as described under the "Sample Name and Description" field of Form 303 and collection data are presented in Table 1. Gross alpha and gross beta concentrations are presented in Table 2. Isotopic thorium, isotopic uranium, and radium-226 data are presented in Tables 3 through 5, respectively. The pertinent procedure references are included with the data tables.

ORISE's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

My contact information is listed below. You may also contact Dale Condra at 865.241.3242 with any questions or comments.

Sincerely,

Wade P. Ivey
Wade Ivey, Manager
Laboratory

WPI:RDC:bj
Enclosures

c: T. Carter, NRC/FSME/DWMEP T-8F5 File 2050
S. Nesmith, NRC/FSME/PBPA/TWFFN 8A23

electronic: S. Roberts, ORISE T. Vitkus, ORISE

Distribution approval and concurrence:	Initials
Technical Review	WCA
Quality Review	JB

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TABLE 1

**SAMPLE IDENTIFICATIONS
AND COLLECTION INFORMATION
BRECKENRIDGE SITE
BRECKENRIDGE, MICHIGAN**

ORISE Sample ID	NRC Region III Sample ID	Collection Date	Collection Time
2050W0001	BRECK072011-01	7/20/11	16:30
2050W0002	BRECK072011-02	7/20/11	16:31

TABLE 2

**CONCENTRATIONS OF GROSS ALPHA AND GROSS BETA
IN WATER SAMPLES
BY GAS FLOW PROPORTIONAL COUNTING
AP1, REVISION 17; CP3, REVISION 2
BRECKENRIDGE SITE
BRECKENRIDGE, MICHIGAN**

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations, TPU ^a , and MDCs ^b (pCi/L)	
		Gross Alpha	Gross Beta
2050W0001	BRECK072011-01	5.2 ± 3.6 , 5.5	8.0 ± 4.7 , 7.6
2050W0002	BRECK072011-02	3.6 ± 3.2 , 5.2	9.3 ± 4.7 , 7.5

^aUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^bThe MDCs are after the comma.

TABLE 3

**CONCENTRATIONS OF THORIUM RADIONUCLIDES
IN WATER SAMPLES
BY ALPHA SPECTROSCOPY AP11, REVISION 5; CP2, REVISION 16
BRECKENRIDGE SITE
BRECKENRIDGE, MICHIGAN**

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations, TPU ^a , and MDC ^b (pCi/L)			
		Th-228	Th-230	Th-232	Total Th ^c
2050W0001	BRECK072011-01	0.23 ± 0.34 , 0.81	0.33 ± 0.17 , 0.07	-0.05 ± 0.06 , 0.29	0.19 ± 0.35
2050W0002	BRECK072011-02	0.22 ± 0.28 , 0.64	0.05 ± 0.10 , 0.24	0.02 ± 0.08 , 0.24	0.24 ± 0.29

^aUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^bThe MDCs appear after the commas.

^cTotal Th is the sum of Th-228 + Th-232.

TABLE 4

CONCENTRATIONS OF URANIUM RADIONUCLIDES
IN WATER SAMPLES
BY ALPHA SPECTROSCOPY AP11, REVISION 5; CP2, REVISION 16
BRECKENRIDGE SITE
BRECKENRIDGE, MICHIGAN

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations, TPU ^a , and MDCs ^b (pCi/L)			
		U-234	U-235	U-238	Total U ^c
2050W0001	BRECK072011-01	2.52 ± 0.47 , 0.18	0.09 ± 0.09 , 0.07	3.00 ± 0.52 , 0.18	5.61 ± 0.71
2050W0002	BRECK072011-02	2.64 ± 0.50 , 0.25	0.18 ± 0.15 , 0.24	2.89 ± 0.52 , 0.19	5.71 ± 0.74

^aUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^bThe MDCs appear after the commas.

^cTotal U is calculated by (U-234 + U-235 + U-238).

TABLE 5

**CONCENTRATIONS OF RADIUM-226
IN WATER SAMPLES
BY ALPHA SPECTROSCOPY AP7, REVISION 19
AND CP2, REVISION 16
BRECKENRIDGE SITE
BRECKENRIDGE, MICHIGAN**

ORISE Sample ID	NRC Region III Sample ID	Radionuclide Concentrations, TPUs^a, and MDCs^b (pCi/L)
2050W0001	BRECK072011-01	0.18 ± 0.15 , 0.28
2050W0002	BRECK072011-02	0.16 ± 0.17 , 0.38

^aUncertainties represent the 95% confidence level, based on total propagated uncertainties

^bThe MDCs appear after the commas.